

# LQ activities S.Rolli -Tufts

LQ samples analyzed:

rome.004677.recov10.LqLqtoqe/ 1 TeV

rome.004676.recov10.LqLqtoqe/ 0.5 TeV

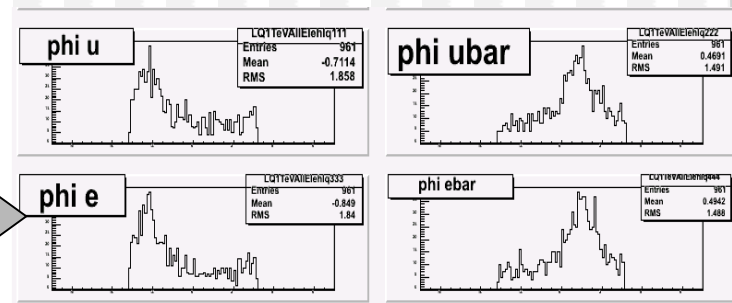
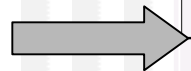
Small ntuple produced, including AOD and ESD information:

ElectronContainer

JetContainer (Kt, cone07, cone04)

MCEventCollection (“TruthEvent”) - ESD

Generator Level Problems



Nevertheless studies performed to test ele reconstruction

# Preliminary Findings

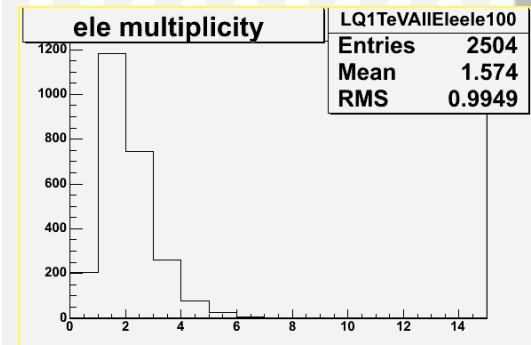
1) Generator level problem with phi distribution  
missing phi randomization in CompHEP/Pythia?

2) Electron Reconstruction...

The frequency of a second high pt reco ele ( with XRatio > 0.6) is low , while  
at parton level the electron/positron is there...

Multiple evidence:

- 1) from matching the reco eles to the 2 LQ decay electrons or
- 2) by selecting 2 reco eles with Likelihood > 0.6 or
- 3) by selecting electrons in the Container coming from  
`author()==ElectronParameters::egamma)`



that there is NOT a second high pt reco ele in the sample (remember the multiplicity  
distribution. Or that the efficiency of reconstruction of the second ele is LOW

It could be a generator level problem propagated to wrong reconstruction....

if there is not a second high  $P_T$  electron, Likelihood ID would not pick it up...

# For the Future

If samples are regenerated, please keep all the generator Level info, this is the first step to validation

After Rome we intend to:

- Reproduce Atlasfast numbers
- Move to 2nd generation and  $\beta = 0.5$  case
- Consider background and optimize cuts:  
mass combination,  
Sumet cut (D0),  
topological cuts (CDF)

